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PNEUMATIC
TIRE VALVE
WRINKLES



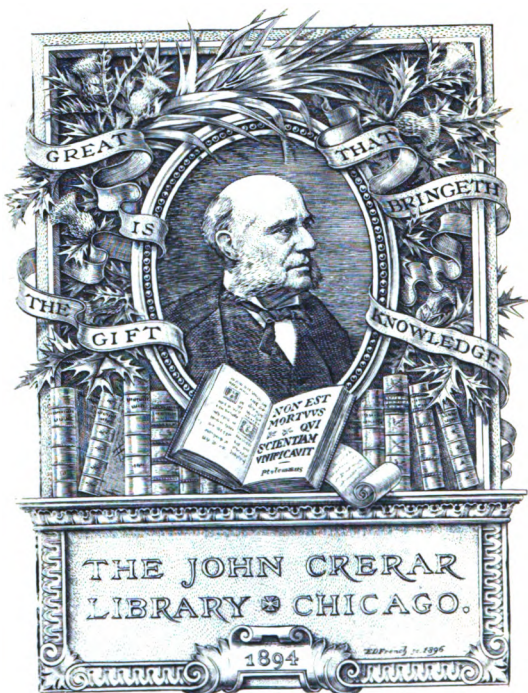
FOR THE USE OF THE VARIOUS
BRANCHES OF THE
U. S. ARMY AND NAVY

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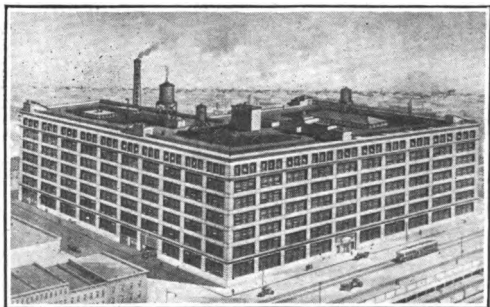
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A. SCHRADER'S SON, Inc.

Founded N. Y., U. S. A., 1844



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BROOKLYN, N. Y.**



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PNEUMATIC TIRE **VALVE WRINKLES**

Compiled by

A. SCHRADER'S SON, Inc.
BROOKLYN, N. Y.



FOR THE USE OF THE VARIOUS BRANCHES

of the

U. S. ARMY AND NAVY



THE
HISTORY OF
THE
UNITED STATES
OF AMERICA
FROM
1789 TO 1899

Copyright, 1918
By
A. SCHRADER'S SON, Inc.

**BRAUNWORTH PRESS
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FOREWORD

THE contents of this booklet may not impress the reader as engrossing literature written to quicken his pulse and stimulate his emotions. Fiction and romance are generally more entertaining than cold facts and the bald recital of technical details relating to the manufacture and the proper use of machinery or tools.

Nevertheless, we urge the reader to consider that this booklet was written for a purpose—to help him in moments of trial, possibly of danger, and to make more certain his chances of emerging therefrom with safety and dispatch.

Prepared for the various branches of the U. S. Army and Navy, this booklet will acquaint the reader with all that it is necessary for him to know about Tire Valves and various allied accessories pertaining to tires, ascertaining of tire pressures, tire inflation, etc. It has been made as brief, concise and complete as conditions warrant.

Read it carefully. Use it for purposes of reference.

In dedicating it to the men in the Service we sincerely trust that it will result in the securing of more efficient usage from *Schrader Universal* products.

A. SCHRADER'S SON, INC.

BROOKLYN, N. Y.

July, 1918

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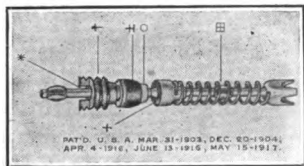
Schrader Universal Pneumatic

∴ ∴ Tire Valve Wrinkles ∴ ∴

Schrader Universal Valves

Are used exclusively on all pneumatic tires manufactured in the United States and Canada. Although there are a great many different lengths and sizes of tire Valves so far as the body part of the Valve is concerned, the Valve Check, or Valve Inside, as we call it, is the same in all *Schrader Universal* Valves and will fit any *Schrader Universal* Valve Body whether used with Bicycle, Motorcycle, Automobile or Aero-plane Tires.

The construction of the *Schrader Universal* Valve Inside is shown in detail in the accom-



panying illustration. In the use of the Valve Inside, care should be exercised to keep the small red rubber Seat Washer +

ABSOLUTELY CLEAN, for if dirt, or any other foreign substance, is allowed to accumulate on this Washer, the Valve will most likely leak when put into service. This condition applies equally to any kind of Valve irrespective of the purpose for which it is used.

Special Valve Inside for Pneumatic Truck Tires

For Pneumatic Truck Tires, Valves for which are described on pages 21 and 22, we furnish a Valve Inside capable of withstanding a pressure of 150 lbs. or more. The seat washer + of this Valve Inside is of black, instead of red, packing, and to avoid this Special Valve Inside being confused with the regular Valve Inside we are supplying it with the brass cup at the bottom of the Plunger ⊞ corrugated and the spring black nickered. Bear in mind that the three points of distinction of this Valve Inside, compared with the regular Valve Inside, are the Black Packing Seat Washer, the Corrugated Brass Cup supporting the spring, and the black nickered spring.

The rule as to cleanliness also applies to the black rubber Plug Washer ±, which performs in the Valve Casing a function like that of a cork in a bottle, making a tight joint in the casing for the metal Valve Seat O, against which the Valve Plunger ⊞, operates when the tire is being inflated. The only way air can enter or leave the tire is through the tubular opening in the Valve Seat member *, which opening is closed, when the tire is being inflated, by the rubber Seat Washer +, due to the pressure of the spring, with the result that if the Seat Washer + is in good condition, an absolutely air-tight joint is made.

To prevent wear, or distortion of the Plug

Washer $\pm$, the upper part of the *Schrader Universal* Valve Inside is made of two members: one carrying the black rubber Plug Washer $\pm$, and the other a screw threaded member $\dagger$, by means of which the Valve Inside is screwed into the Valve Body. Part O, to which is attached the Plug Washer $\pm$, being fitted to $\dagger$, to provide a swivel motion, does not revolve during the operation of screwing down the Valve Inside consequently the Plug Washer $\pm$ is subjected only to the pressure resultant from being forced into the Valve Body. The rubber Seat Washer $+$ is subjected only to the resistance of the spring on the plunger $\sqcap$ which holds the Plunger firmly seated, even when the air pressure in the tire is low.

Oil coming in contact with the rubber Washers $\pm$ and $+$, or entering the inner tube, will soften the rubber and cause quick deterioration, resulting in the former instance in Valve leakage, and in the latter, possibly in a blow-out. It is, therefore, advisable before attaching a pump to a Tire Valve to give the Plunger of the pump a few strokes to remove any oil, water or dirt that may have accumulated in the pump or hose.

CAUTION: When placing new Insides in Valves be sure there is no dirt on the rubber Seat Washer $+$. If there is, remove it by brushing with an ordinary tooth brush.

PNEUMATIC TIRE VALVE WRINKLES

Screw down the Inside as tightly as possible by means of the slotted Valve Cap.

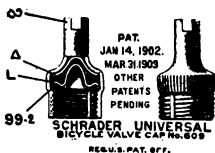


Schrader Universal Valve Insides

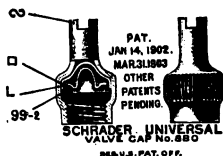
For the convenience of the motorist *Schrader Universal* Valve Insides are packed five in a tin box as illustrated.

Schrader Universal Valve Cap

This is made in two types, No. 609, or Light Valve Cap. for use on Bicycle and Motorcycle Valves, and No. 880, or Heavy Valve Cap, for use on Motor and Aeroplane Tire Valves.



Schrader Universal
BICYCLE VALVE CAP No. 609
Used on bicycle and motor-
cycle tire valves only.



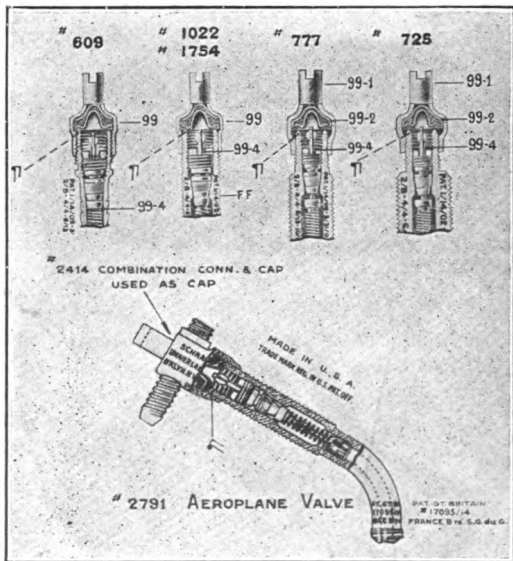
Schrader Universal
MOTOR VALVE CAP No. 880
For use on motor tire valves.

We have found from extended tests and long experience that the increased pressures carried in Motor and Aeroplane Tires require Valves fitted with our No. 88o Cap.

By reference to the illustrations it will be noted that there are only two points of difference in these caps, namely: the outside shell part of the No. 6o9 is lighter in construction than the No. 88o, and the metal cap plate $\triangle$ in the No. 6o9 Cap is without the side flanges of the metal plate $\square$, shown in the No. 88o Cap. This reinforced plate is necessary in the No. 88o Cap because of the greater pressure carried in Motor and Aeroplane Tires over that used in Bicycle Tires.

The construction of both types of the *Schrader Universal* Valve Cap is such that if the surface ¶ at the pump end of the Tire Valve, page 14, against which the rubber Washer 99-2 bears, is in good condition, the Valve Cap is capable of retaining not only a pressure equal to that usually carried in tires, but considerably greater. In fact, our Valve Cap and Washer have been found to maintain a tight closure joint when tested under as high a pressure as 1000 pounds to the square inch. Hence, this Cap provides two locks in the tire Valve for retaining the air in the tire, one at the Seat Washer + of the Valve Inside and the other by the seating of Cap Washer 99-2 against ¶ of Valve.

PNEUMATIC TIRE VALVE WRINKLES



Illustrating various styles of *Schrader's Universal* Valves at pump ends.

By reference to the illustrations of Valve Caps, page 12, in cross-section it will be observed that the efficient operation of the Valve Cap is due to its unique construction, the principal features of which are:

1. The Valve Cap, when screwed down on the pump end of the Valve ¶, turns on the metal cup Swivel Washer Δ or $\square$, which is placed between the rubber Washer 99-2 and the inner upper surface of the Valve Cap proper; this arrangement not only saves the loose rubber Washer 99-2 from premature wear and deterioration, but prevents this Washer from turning when the Valve Cap is being tightened so that the rubber Washer 99-2 is brought into contact with the pump end ¶ of the Valve by a straight downward pressure.

2. The pin of the Valve Inside sometimes extends slightly beyond the Valve Body and to avoid the Rubber Cap Washer 99-2 depressing the Valve pin, the metal Washer L is cupped as shown. This cupped metal plate L, when moulded in the rubber Washer 99-2 prevents the distortion of the Washer under pressure and adds to its strength, so that it is possible to withstand very high pressure.

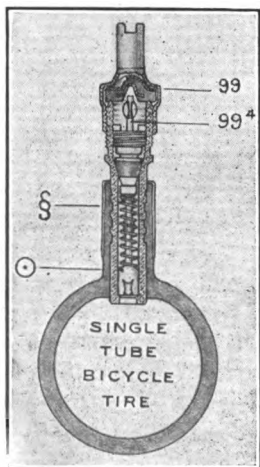
3. The slotted end ∞ of the Valve Cap is used for screwing down, or removing, the Valve Inside. In operation, the Valve Cap is unscrewed from the Valve; the slotted end ∞ inserted in the

PNEUMATIC TIRE VALVE WRINKLES

Valve; when it has properly engaged the small lugs on the screw-threaded member † of the Valve Inside, the Cap can be turned like a socket wrench and the Inside readily removed; or if it is desired to screw down the Valve Inside, the Cap is operated in a reverse direction.

No. 609 Schrader Universal Bicycle Valve

Is fitted to all Bicycle Tires used in the United States, except the Palmer and G. & J. types.

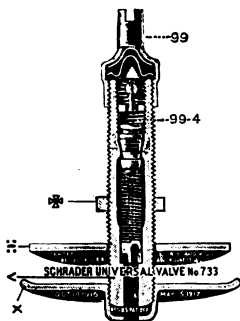
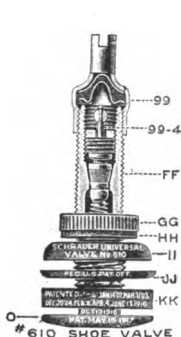


To attach the No. 609 Valve to the rubber cot ⊙ of the Bicycle Tire in such a manner as to make an airtight joint, a metal ferrule, § of the proper size is placed over the cot ⊙; the shank of the No. 609 Valve is then forced into the cot by hand the proper depth, and by means of a special machine furnished the Tire Manufacturer by

SCHRADER'S SON, Inc., the metal ferrule is contracted sufficiently to retain the No. 609

Valve in place and effect an airtight joint. If the operation of attaching the No. 609 Valve to the rubber cot is properly performed, this part of the tire will require absolutely no attention during its life.

Schrader Universal Bicycle Repair Valves



**SAME STYLE WITH SMALLER
WASHERS KNOWN AS NO. 820**

To enable the user of a Bicycle Tire fitted with a No. 609 Valve, but which has had the rubber cot  partly or entirely cut away at the base due to the tire "creeping," or from other cause, we are furnishing, for a small tear, the No. 610 style Shoe Valve, but for a large tear recommend the Oval Base Shoe Valve.

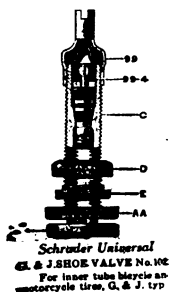
To use the No. 610 Shoe Valve, insert its base  in the hole left in the tire after the removal of all of the Valve cot extending beyond the sur-

PNEUMATIC TIRE VALVE WRINKLES

face of the tire, then force down the rubber Washer KK, the sheet metal Washer JJ, and screw down the metal screw Washer II. The knurled nut GG with Washer HH acts as a rim nut to prevent "creeping" of the tire and to close the Valve hole in the rim.

In using the Oval Base Style Shoe Valve, the metal Washer X, is unscrewed from the valve, placed in the opening in the tire in such a manner as not to increase the size of the tear; brought into proper position so that the Valve Body < may be screwed into the socket of the Washer X, and when properly tightened the upper metal Washer ::, is forced down against the surface of the tire and clamped in place by screwing down tightly the metal Hexagon Nut ✚, which will result in an airtight joint.

No. 1022 G. & J. Shoe Valve



Used on G. & J. type Bicycle and Motorcycle Tires. It is secured to the inner tube by clamping this between the Base ∴ and the metal Ring Washer AA, so that when the knurled Nut E is screwed down tightly, an airtight joint is secured. The Hexagon Nut D, employed as a Rim Nut, should always be

tightened against the Rim, after the tire has been mounted so as to prevent "creeping" of the tire and to close the Valve hole in the rim.

No. 2079 Motorcycle Spreader .

Some Tire Manufacturers prefer, when using the No. 1022 G. & J. Valve on Motorcycle Tires, to substitute for the Ring Washer AA, the Combination Ring Washer and Spreader No. 2079, illustrated herewith.

For Motorcycles for heavy duty, fitted with heavier rims and over-sized tires, we are prepared to furnish a valve of the No. 1022 style, but with a stem $\frac{1}{2}$ " longer. This Valve is known as our No. 1231.



*Schrader Universal
No. 2079 Combination
Ring Washer and
Spreader*

For Palmer type tires, there is employed a Valve similar to our No. 610 style, illustrated and described on page 17, but having a somewhat smaller base, which is covered with rubber to prevent the cutting of the tube.

Schrader Universal Motor Tire Valves

There are only two styles of *Schrader Universal* Motor Tire Valves; one used for 3" diameter tires and smaller, known as our No. 777, the other our No. 725 used on tires larger than 3".

PNEUMATIC TIRE VALVE WRINKLES

The No. 777 style is smaller in diameter than the No. 725 and is made in two lengths, the longer, No. 825, measuring $\frac{1}{2}$ " more than the No. 777.

The No. 725 style is made in many different lengths, but only the six principal Valves of the No. 725 style are hereinafter described.

When automobile standards were fixed years ago, the Rim Manufacturers concluded that it would weaken wheels for 3" diameter tires and smaller if made with a hole as large as was required for No. 725 Valves and to meet their views we developed the No. 777 Valve, which was adopted as a standard for such conditions. Since that time actual practice has demonstrated that it is not detrimental to the operation and life of a wheel when used with a hole sufficiently large for a No. 725 Valve but, notwithstanding this, the No. 777 Valve has been retained as a standard for tires 3" in diameter and smaller.

The No. 825 Valve is used with 3" diameter tires in connection with demountable rims because of the necessity of using a longer Valve. Some Tire Manufacturers have even used the No. 825 Valve on 4" diameter tubes.

The principal sizes of the No. 725 style Valve are:

For Ordinary Motor Cars

No. 1822: Measures 2" from inside of [base to end of large thread on male, and is the standard Valve used on tires for wire wheels.

No. 724: Measures $2\frac{3}{4}$ " from inside of base to end of large thread on male; at one time quite extensively used by Tire Manufacturers for $3\frac{1}{2}$ " diameter tires.

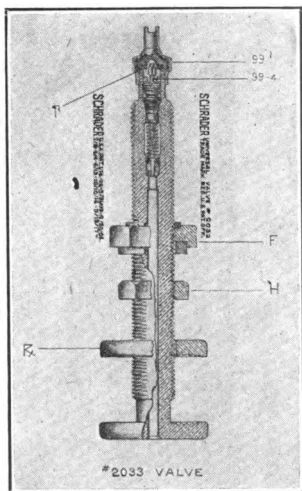
No. 967: Measures 3" from inside of base to end of large thread on male, and is used to some extent for $3\frac{1}{2}$ " and occasionally 4" diameter tires.

No. 725: Measures $3\frac{3}{8}$ " from inside of base to end of large thread on male. This Valve is most commonly used for $3\frac{1}{2}$ " 4", $4\frac{1}{2}$ ", 5", and $5\frac{1}{2}$ " diameter tires.

No. 792: Measures $3\frac{3}{4}$ " from inside of base to end of large thread on male, and is used principally in tires $5\frac{1}{2}$ ", and 6" diameter.

For Motor Trucks Fitted with Pneumatic Tires 6" Diameter and Larger

No. 2792: Same length as No. 725 Valve but with $1\frac{1}{4}$ " diameter base. Intended for use on



PNEUMATIC TIRE VALVE WRINKLES

standardized rims for motor trucks fitted with pneumatic tires.

No. 2033: Same length as No. 792 Valve, base $1\frac{1}{4}$ in. diameter.

No. 2415: Is $\frac{3}{4}$ " longer than the No. 2033. Used with truck tire rims of the same size as required for solid tires.

The fittings on the No. 777 and No. 825 Valves are:

No. 1990. Combination Ring Washer and Bridge Washer S-T.

No. 777. Hexagon Nut P.

No. 2026. Combination Rim Nut and Dust Cap Bushing N with Leather Washer M.

Valve Stem U.

No. 880. Valve Cap, 99-1.

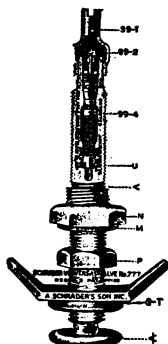
No. 1801. Valve Inside, 99-4.

The inner tube is clamped

between the Base $\nless$ and the grooved under surface of the Combination Ring Washer and Bridge Washer S-T.

The Combination Ring Washer and Bridge Washer S-T is clamped in place by screwing down tightly the Hexagon Nut P, which, if properly done, will prevent leakage at the Valve hole in the tube.

The No. 2026 Combination Rim Nut and Dust



Schrader Universal
No. 777
Motor Tire Valve

Cap Bushing NM performs two functions; first, as a Rim nut to properly set the Valve and thereby prevent "creeping" of the tube, at the same time closing the Valve hole in the rim, thus preventing dirt and water coming into contact with the inner tube; secondly, enabling one to use the same standard Dust Cap as is employed on our No. 725 style Valves because the outside thread on the Bushing is the same as the body thread on the No. 725 Valve.

The Valve Inside and No. 880 Valve Cap have already been described on pages 9 to 16.

The fittings used on all No. 725 style Valves with the exception of No. 2033, 2415 and 2792 are:

No. 1975. Combination Ring Washer and Bridge Washer J-L.

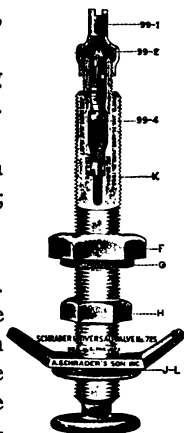
No. 725. Hexagon Nut H.

No. 2081. Hexagon Rim Nut F with Leather Washer G; Valve Stem K.

No. 880. Valve Cap 99-1.

No. 1801. Valve Inside 99-4.

These fittings,—with the exception of being larger in diameter to accommodate the No. 725 Valve Stem, and the Rim Nut No. 2081 being different than the No. 2026 Rim



*Schrader Universal
No. 725 Motor Tire Valve*

Nut and Bushing on the No. 777 Valve,—are identical in design to those on the No. 777 Valve, and their use is the same as those fittings described on page 22. The fittings on the No. 2033 style valve are the same as those on the No. 725 style Valve, except; instead of the Combination Ring Washer and Bridge Washer, a heavy brass Ring Washer *a*, page 21, is employed:



Schrader Universal
Dust Cap No. 2069

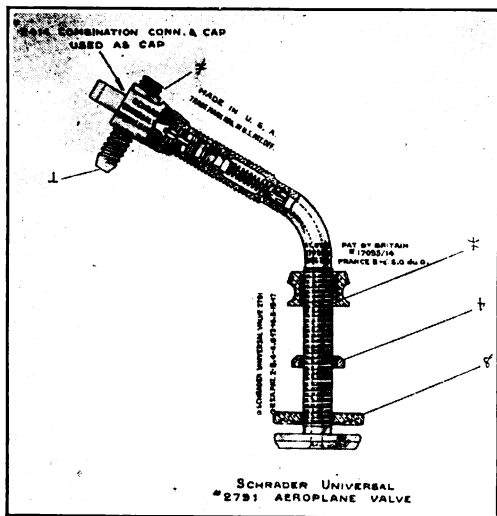
Dust Caps No. 2069 and No. 2070

The No. 2069 is used principally on 777 and 725 Motor Tire Valves, and the No. 2070 which is $\frac{3}{8}$ " longer than the No. 2069 is generally used on 792 Motor Tire Valves.

For Aeroplane Tires

The No. 2791 *Schrader Universal* Valve is the standard Valve now being used on Aeroplane Tires in the United States. It has also been adopted by the Signal Corps and Quartermaster's Department of the U. S. Army. It is fitted with a regular *Schrader Universal* Valve Inside, and the operation of the Ring Washer *ø*, hexagon Nut *b* and the Rim Nut *X* are the same as these fittings on Motor Tire Valves. The No. 2414 Valve Cap and Pump Connection enables the aviator in foreign service to inflate his tires by means of the ordinary European Cycle Pump, should conditions arise where an American Pump would not be available. In

operation as a Pump Connection, the Cap is unscrewed from the Valve, the small screw threaded end $\neq$ screwed firmly into the Valve, and the end $\perp$ is then ready to have attached to it the European Cycle Pump. This combination fitting, when used as a Valve Cap serves the same purpose and pos-

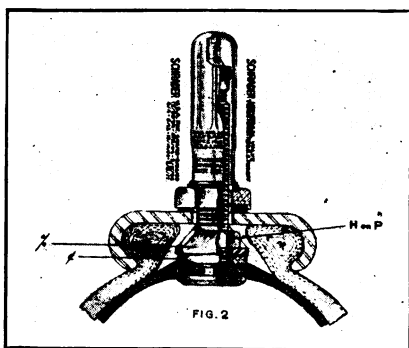
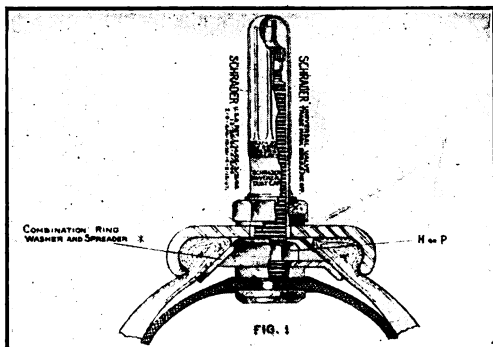


sesses the same advantages as the No. 88o Valve Cap described on page 12. The bend of the Valve Body is such as to bring outer extremity of Valve in center of hand hole of shield and is at such an angle that the Valve does not project beyond shield when the No. 2414 Cap is used as a Pump Connection.

PNEUMATIC TIRE VALVE WRINKLES

Different Types of Motor Valve Equipment]

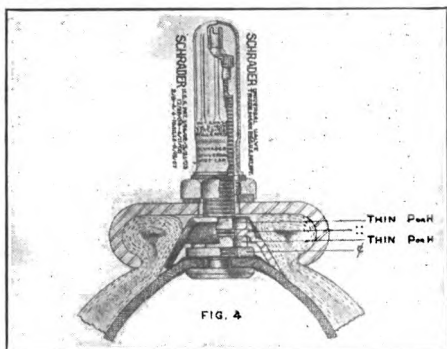
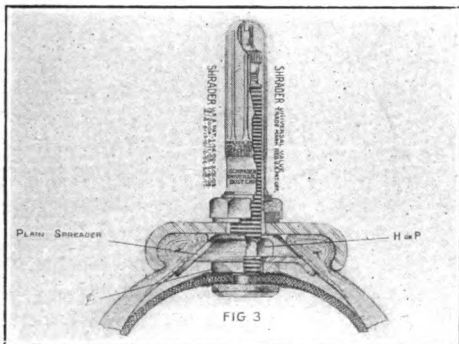
Instead of the Combination Ring Washer and Bridge Washer *JL* or *ST* heretofore illustrated



and described, some Tire Manufacturers use the Combination Ring Washer and Spreader, * Fig. 1.

A. SCHRADER'S SON, Inc., BROOKLYN

The Combination Ring Washer and Spreader varies in width, length, and shape, according to the size tire used.



Then again, other Tire Manufacturers use a separate Ring Washer, ϵ , and Bridge Washer γ , Fig. 2.

PNEUMATIC TIRE VALVE WRINKLES

Other Tire Manufacturers use a separate Ring Washer, ϕ , and Plain Spreader, Fig. 3.

A limited number of Tire Manufacturers use a separate Ring Washer ϕ , Hexagon Nut of same style as *P* or *H* but half the thickness placed above the Ring Washer, ϕ , a Recessed Spreader :: above Hexagon Nut and above Spreader another Thin Hexagon Nut. See Fig. 4.

The greatest number of Tire Manufacturers use either the Combination Ring Washer and Bridge Washer *JL* or *ST*, or the Combination Ring Washer and spreader, *, and the detailed description of other forms of equipment is given merely to acquaint the reader with the practice of the various Tire Manufacturers.

Proper Mounting of Fittings on Tires

What has heretofore been said concerning the usage and care of Valve Insides and Valve Caps should be borne in mind in handling Tire Valves.

The outside fittings of all Valves have important functions; much more so in the case of Motorcycle, Automobile, and Aeroplane, than on Bicycle Tire Valves. Greater care should be exercised to see that the requisite fittings for such Tire Valves are employed.

No *Schrader Universal* Valve for Motorcycle,

Automobile or Aeroplane tires should be used without a Rim Nut, the function of which is to hold the Valve in proper position. The use of the Rim Nut will, in a great many cases, prevent "creeping" of the tube, and as it also acts as a closure for the Valve hole in the rim, it will prevent the entrance of water, snow, dust or oil, which, when coming in contact with the tube or casing, would be likely to cause quick deterioration of the rubber. When a Rim Nut is not used on a Valve the play of the Valve results in the rapid wearing away of the Valve Body, with the likelihood that either the base of the Valve will shear off, because of having been weakened, or that it will break at the worn part.

As rubber is inclined to "creep" when under pressure, it is advisable, before putting a new tube in the casing, to tighten the Hexagon Nut which bears against the Bridge Washer and Spreader or Ring Washer, so as to take up the "give" which might have occurred through the rubber "creeping" away from the grooved surface of the Valve base and the Ring Washer. However, care should be taken not to screw the Hexagon Nut down so tightly as to cause the raised edges in the Base and Ring Washer to cut through the tube.

European Valve Equipment

Bicycles, Motorcycles, and Aeroplanes used in Great Britain, France, Italy, Continental

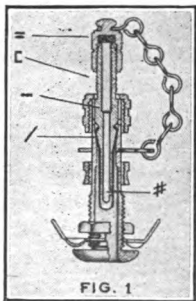


FIG. 1

Europe, and other parts of the world except the United States and Canada have, to a large extent, been fitted with the Woods type Cycle Valve. Fig. 1 on Bicycles, and Motorcycles, and Fig. 2 on Aeroplanes.

The pump thread I of the Woods Valve is smaller in diameter, and has a coarser and different pitch thread than the *Schrader Universal* Valve.

The Check feature of the Woods Valve consists of the Valve Plug - with rubber Sleeve /. The air enters the Tire through a hole in the Valve Plug at #, by forcing the inner wall of

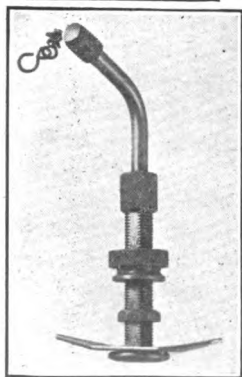


FIG. 2

the rubber tube / away from the Valve Plug - sufficiently to allow it to pass into the tire.

The rubber Sleeve must be made of very fine rubber and therefore it is very delicate; the rubber rapidly deteriorates at the point where it is clamped between the Valve Plug - and the inner wall of the Valve Stem.

The construction of the Woods Valve is such that whenever a tire must be removed from the rim to repair a puncture or for any other cause the Valve Plug must be taken from the Valve Stem as the Plug Cap will not pass through the hole in the rim. Whenever this is necessary the rubber sleeve invariably tears, and, therefore, after the puncture in the tire has been repaired the Valve Stem must also be repaired by putting on a new rubber Sleeve. This is not necessary with the *Schrader Universal* Valve as the Valve Check is entirely within the Valve Stem, and in making a change in the tire or tube it is only necessary to remove the Valve Cap and the Rim Nut.

Adapting the *Schrader Universal* Valve Inside for Foreign Bicycles, Motorcycles and Aero-planes, Fitted with Woods Valves

The European tire user had put up with the inconvenience incidental to the use of Woods Valves so long that until *Schrader Universal* Valves were introduced abroad he had accepted this inconvenience as inevitable, but there is now

PNEUMATIC TIRE VALVE WRINKLES

a growing desire to use *Schrader Universal* Valves instead of the Woods type.

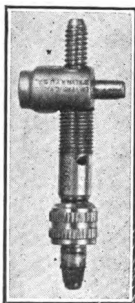


FIG. 1

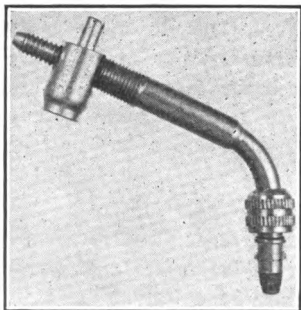


FIG. 2

In order to meet this demand we have designed a Valve Plug fitted with the *Schrader Universal* Inside, Sliding Plug Cap and No. 2414 Combination Valve Cap and Foreign Pump Connection. The Valve Plug illustrated in Fig. 1 is suitable for use with Woods Valve Stems in tubes and tires on bicycles, motorcycles and light cars, and the Bent Valve Plug illustrated in Fig. 2

is suitable for use with Woods Valve Stems in aeroplane tires. These Valve Plugs give the user the advantage of the *Schrader Universal* Valve Inside without any chance of injury to the tire or tube as might occur in a great

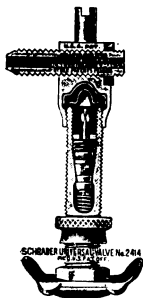
many instances where the Valve Stem was removed. The great advantage of using the *Schrader Universal* Valve Plugs is that tubes or tires fitted with them can be accurately inflated to the pressure prescribed by the Tire Manufacturer.

In other words these Valve Plugs permit of the use of a Tire Pressure Gauge for ascertaining the air pressure in a tire, which is absolutely impossible when the Woods type of Valve is used.

The body of the Woods Valve, attached to the tire, is not disturbed when replacing the upper part, or "Plug," with a *Schrader Universal* Valve Plug.

European Valve Equipment

If instead of using the Woods Valve, European Manufacturers, or Bicycle and Motorcycle users, desire a *Schrader Universal* Valve, having outside fittings similar to the Woods Valve, the *Schrader Universal* Valve Inside, and the No. 2414 Combination Valve Cap and Pump Connection, we are prepared to furnish the No. 2414 Valve illustrated. This Valve possesses the additional advantage of having a body thread of the same size as the Pump thread on European Motor Tire Valves, so that should occasion require, a European Motor Tire Pump could be used for inflating a tire fitted with a No. 2414 Valve.

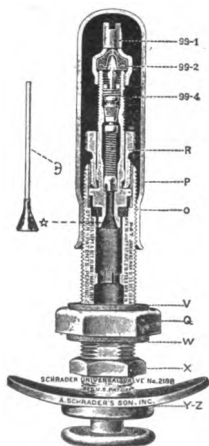


Schrader Universal
No. 2414 Shoe Valve

PNEUMATIC TIRE VALVE WRINKLES

European Valve Equipment for Motor Tires

To meet the demand for a Motor Tire Valve for use abroad, fitted with a *Schrader Universal* Valve Inside, we are furnishing the No. 2198 Valve illustrated. All threads on this Valve are



Schrader Universal
Motor Tire Valve No. 2198
European style.

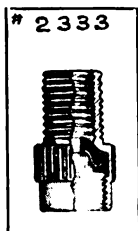
the same as those on European Motor Tire Valves and in consequence the Valve Top R, the Combination Ring Washer, and Bridge Washer Y-Z, Hexagon Nut X and Hexagon Rim Nut QW are interchangeable with the fittings usually employed on European Valves, although such fittings are usually more numerous than we consider necessary for the purpose. The Housing, or, as we call it, the Top, of the No. 2198 Valve, which on European Valves is made up of two

loose parts, is in the No. 2198 Valve really only one part, and although fitted with the *Schrader Universal* Valve Inside, is so constructed that should replacement be necessary and there be no new Valve Inside available, an ordinary European Valve Plunger, like D can be used, by inserting it in ☆ of the Housing or Top, after having

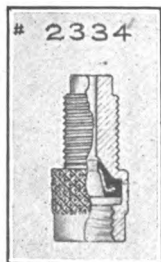
removed the Valve Inside. The Dust Cap *P* used on this Valve is of the same style as the No. 2069, employed on the regular *Schrader Universal* Valves, described on page 24, but is, of course, larger in diameter.

Valve Adapters for Use Abroad

The No. 2333 Adapter, when screwed on a European Motor Tire Valve, enables one to inflate a Tire, so fitted, by means of an American Pump.



The No. 2334 Adapter, when screwed on a *Schrader Universal* Valve used abroad, enables the user to inflate a Tire, so fitted, by means of the European Motor Tire Pump.



NOTE: From the sectional cuts of the No. 2333 and No. 2334 Adapters it will be noted that the rubber washers in these Adapters are the same as the rubber cap washer 99-2 in our No. 609 Valve Cap.

PNEUMATIC TIRE VALVE WRINKLES

HELPS FOR THE MOTORIST

Schrader Universal Patented Devices

Tire Pressure Gauges

Not only tire life but gasoline consumption depends on proper maintenance of tire pressure.

More than 75% of tires returned to Tire Manufacturers for adjustment have been found to have come to an untimely end because of underinflation. Tests recently conducted at Yale-Sheffield Scientific School by Professor E. M. Lockwood, established the fact that underinflation of tires can increase fuel consumption as much as 25%, as soft tires have a greater rolling resistance than properly inflated tires, consequently a greater consumption of fuel is needed to overcome this resistance.

The *Schrader Universal* Tire Pressure Gauge has been endorsed by Tire Manufacturers as the most reliable instrument devised to measure air pressure in pneumatic tires.

Directions for Use: Remove the Dust Cap and Valve Cap from the Valve. Press Gauge firmly over mouth of Valve. The entrance



of the air into the Gauge will cause the Indicating Tube to emerge. When this tube is at rest the Gauge may be removed from the Valve and the Tube will remain fixed until pressed back by the hand. The number nearest the end of the outside nickel-plated casing indicates the air pressure in the tire. In using the *Schrader Universal* Pump Connection described on page 39, the Gauge is operated by pressing firmly against the protruding pin of the pump Connection, the same as when applied to a Valve.

CAUTION: Protect your Gauge when not in use by keeping it in the leather bag furnished with all *Schrader Universal* Tire Pressure Gauges.

***Schrader Universal* Tire Pressure Gauge for Truck Tires**

To meet the requirements of the U. S. Army we have developed, in conjunction with the Signal Corps, the Gauge illustrated with base on an angle of 90° for measuring pressures in pneumatic Truck Tires.

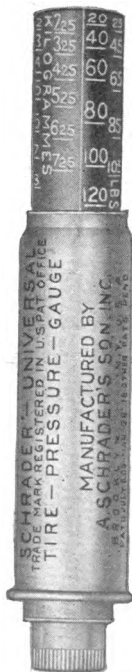


PNEUMATIC TIRE VALVE WRINKLES

Oftentimes the free space between the hub and the felloe of the wheel on trucks is rather limited, especially on rear wheels, but with this type of Gauge the pressure in truck tires under such conditions can readily be ascertained.

The Indicating Sleeve of the Gauge is marked to indicate air pressures up to 170 lbs. and can be used in connection with tires as large as $8\frac{1}{2}$ ins. in diameter.

We are prepared to furnish for use abroad a Gauge of this type fitted with combination base and combined Indicating Sleeve calibrated in pounds and kilograms similar to illustration at left.



Schrader Universal Tire Pressure Gauges for Foreign Use

The construction of the European Motor Tire Valve does not permit of the use of the ordinary *Schrader Universal* Tire Pressure Gauge. To meet this condition we are furnishing the type of Gauge illustrated.

To use with the regular *Schrader Universal* Valve, merely unscrew the Combination Base and apply the Gauge to the Valve in the usual manner.

A. SCHRADER'S SON, Inc., BROOKLYN

This Gauge is used in Great Britain and Continental Europe and we are therefore furnishing it with the Indicating Sleeve marked with pressures in both pounds and kilograms, so that the user abroad may readily read the pressures according to the standards in use.

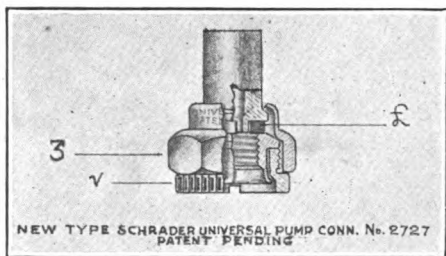


Schrader Universal
Pump Connection No. 2238

Attachable to all Pumps of American manufacture used for inflating automobile or motorcycle tires. Permanently attach Pump Connection to pump hose by screwing tightly the outside threaded end into fitting on hose. Attach to tire valve by screwing swivel nut ÷ on valve. The protruding pin α when depressed by firmly holding against it the foot of the Tire Pressure Gauge, deflates the plunger in the Valve and allows the air to enter the Gauge to indicate the pressure in the tire. No more in-

PNEUMATIC TIRE VALVE WRINKLES

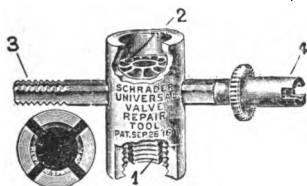
convenient disconnecting and reconnecting of the pump to the Tire Valve when ascertaining the pressure in the tire. If too much air enters the tire simply depress the protruding pin α with the finger for a moment or two when excess air will escape.



We have just made a change in the construction of the swivel nut part of the Connection and will hereafter furnish the *Schrader Universal* Pump Connection fitted with a heavy hexagon nut, 3 as illustrated, so arranged that when the fibre washer f wears, it can be readily replaced by unscrewing the slotted knurled washer v .

Valve Repair Tool

Occasionally the Valve Stem is damaged by accident or carelessness in the removal of demountable rims. The injury generally consists of a slight derangement of the threads, and to aid the motorist under such conditions to make



Schrader Universal

No. 2395 Valve Repair Tool

For quick and proper repair of cap and inside threads of valves. Made absolutely accurate, and of best steel.

quick repairs the *Schrader Universal* Valve Repair Tool has been placed on the market.

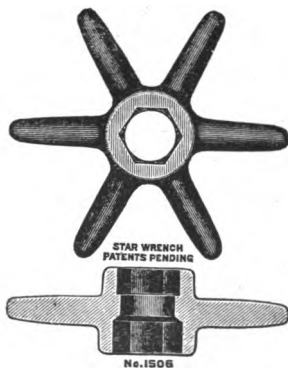
Adaptable to four uses:

1. Re-threading the Valve Cap thread,
2. Refinishing the top of the Valve Stem,
3. Re-threading the inner thread of the Valve,
4. Removing the Valve Inside from the Valve Stem.

Be careful when using this tool, to arrange the wheel so that the Cap end of the Valve will point downward to prevent any shavings entering the Valve Stem, as these would cause leakage when the Valve is put into use.

Schrader Universal Star Wrench

Very useful for unscrewing or tightening Hexagon Nut *H* or *P* on Valve that clamps the Bridge Washer or Spreader tightly to the tube. One end of the hub of the Wrench is chambered to take the Hexagon Nut *P* of the No. 777 Valve



Schrader Universal

Star Wrench No. 1506

and the other end is chambered for the Hexagon Nut *H* of the No. 725 Valve. After the Nut has been started it will quickly run up or down the Valve Stem by simply tapping the prongs on the Wrench with the fingers.

Schrader Universal Deflating Cap

Should it become necessary to quickly remove all the air from a tire when making a change, the No. 1886 Deflating Cap will prove a convenient accessory.

Remove ordinary Valve Cap and screw



Deflating Cap on Valve the same as Valve Cap. The plunger  of the Valve will be depressed and the air rapidly escape. Does not injure Valve Inside as is likely to occur when a screw driver, nail or other unsuitable tool is used for this purpose.

NOTE: On account of lack of space, many of the articles have been shown reduced size, but cuts have been so made and arranged as to best illustrate the design and operation of the various devices.

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